**Amendments to the Claims:**

This listing of the claims will replace all prior versions and listings of the claims in the application:

Listing of Claims:

1. (Previously Presented) A method of receiving a signal in the presence of noise and interference comprising the steps of:

demodulating the signal when a relationship between the signal and the noise and the interference meets a first value;

demodulating the signal if a relationship between the noise and the interference meets a second value that is different from the first value; and

jointly demodulating the signal if the relationship between the noise and the interference does not meet the second value.

2. (Canceled).

3. (Canceled).

4. (Previously Presented) A method according to Claim 1:

wherein the step of demodulating the signal when the relationship between the signal and the noise and the interference meets the first value comprises the step of demodulating the signal when a signal-to-noise-and-interference ratio exceeds a first threshold;

wherein the step of demodulating the signal if the relationship between the noise and the interference meets the second value comprises the step of demodulating the signal if an interference-to-noise ratio is less than a second threshold; and

wherein the step of jointly demodulating comprises the step of jointly demodulating the signal if the interference-to-noise ratio exceeds the second threshold.

5. (Original) A method according to Claim 4 wherein the interference comprises an interfering signal including an interfering signal synchronization word, and wherein the step of jointly demodulating comprises the steps of:

locating the interfering signal synchronization word in the received signal; and

determining power of the interfering signal relative to noise power from the located interfering signal synchronization word, to thereby determine the interference-to-noise ratio.

6. (Previously Presented) A method according to Claim 5 wherein the step of jointly demodulating further comprises the step of jointly demodulating the signal in response to the located interfering signal synchronization word.

7. (Original) A method for detecting a desired signal that includes a desired signal synchronization sequence, from a received signal that includes an interfering signal having an interfering signal synchronization sequence, the desired signal detecting method comprising the steps of:

synchronizing the received signal;

generating a first desired signal, an estimate of an interference-to-noise ratio of the received signal and an identification of the interfering signal synchronization sequence from the synchronized received signal;

generating an estimate of a carrier-to-interference-and-noise ratio of the received signal;

jointly demodulating the received signal in response to the identification of the interfering signal synchronization sequence, to generate a second desired signal; and

selecting one of the first desired signal and the second desired signal based upon the estimate of the carrier-to-interference-and-noise ratio of the received signal and the estimate of the interference-to-noise ratio of the received signal.

8. (Original) A method according to Claim 7:

wherein the jointly demodulating step is further responsive to the first desired signal to generate the second desired signal.

9. (Original) A method according to Claim 7 further comprising the step of:

estimating an interfering signal channel in response to the synchronized received signal and to the identification of the interfering signal synchronization sequence, to generate a channel estimate for the interfering signal, wherein the step of jointly demodulating also is responsive to the channel estimate for the interfering signal.

10. (Original) A method according to Claim 7 wherein the selecting step comprises the step of selecting the second desired signal when the signal-to-noise-and-interference ratio is less than a first threshold and when the interference-to-noise ratio is greater than a second threshold, and selecting the first desired signal otherwise.

11. (Original) A method for locating an interfering signal synchronization sequence in a received signal that includes a desired signal having a desired signal synchronization sequence and an interfering signal having the interfering signal synchronization sequence, the method comprising the steps of:

demodulating the received signal to generate an estimate of the desired signal and an estimate of a residual signal;

generating an estimate of a carrier-to-interference-and-noise ratio of the received signal;

selecting one of the received signal and the estimate of the residual signal, based upon the estimate of the carrier-to-interference-and-noise ratio of the received signal; and

finding the interfering signal synchronization sequence in response to the selected one of the received signal and the estimate of the residual signal.

12. (Original) A method according to Claim 11 wherein the step of selecting comprises the steps of:

selecting the received signal, if the estimate of the carrier-to-interference-and-noise ratio of the received signal is less than a threshold; and

selecting the estimate of the residual signal, if the estimate of the carrier-to-interference-and-noise ratio of the received signal is greater than the threshold.

13. (Original) A method according to Claim 11 wherein the step of selecting comprises the step of selecting one of the received signal and the estimate of the residual signal, if the estimate of the carrier-to-interference-and-noise ratio of the received signal exceeds a threshold.

14. (Previously Presented) A method according to Claim 11 wherein the demodulating step comprises the steps of:

demodulating the received signal to generate an estimate of the desired signal; and subtracting the estimate of the desired signal from the received signal to generate the estimate of the residual signal.

15. (Original) A method according to Claim 11 wherein the finding step is followed by the step of:

estimating an interfering channel response from the found interfering signal synchronization sequence.

16. (Original) A method according to Claim 13 wherein the threshold is a first threshold and wherein the step of selecting comprises the steps of:

selecting the received signal if the estimate of the carrier-to-interference-and-noise ratio of the received signal is less than a second threshold: and

selecting the estimate of the residual signal, if the estimate of the carrier-to-interference-and-noise ratio of the received signal is greater than the second threshold and less than the first threshold.

17. (Previously Presented) A method according to Claim 14 wherein the step of demodulating the received signal to generate the estimate of the desired signal comprises the steps of:

demodulating the received signal to generate uncoded bits;

decoding the demodulated signal;

recoding the decoded signal to generate coded bits;

combining the coded bits and a set of uncoded bits not used for decoding to generate a detected sequence;

remodulating the detected sequence; and

applying the remodulated detected sequence with a desired signal channel estimate to generate the estimate of the desired signal.

18. (Original) A method according to Claim 15 wherein the estimating step comprises the steps of:

estimating a medium response for each of a plurality of delays, in response to the found interfering signal synchronization sequence;

selecting a subset of the estimated medium responses to produce a plurality of medium response rays; and

estimating the interfering channel response in response to the medium response rays.

19. (Previously Presented) A system for receiving a signal in the presence of noise and interference, comprising:

a demodulator that is responsive to a relationship between the signal and the noise and the interference meeting a first value and also is responsive to a relationship between the noise and the interference meeting a second value that is different from the first value; and

a joint demodulator that is responsive to the relationship between the noise and the interference not meeting the second value.

20. (Canceled).

21. (Canceled).

22. (Previously Presented) A system according to Claim 19:

wherein the demodulator is responsive to a signal-to-noise-and-interference ratio exceeding a first threshold and wherein the demodulator also is responsive to an interference-to-noise ratio being less than a second threshold; and

wherein the joint demodulator is responsive to the interference-to-noise ratio exceeding the second threshold.

23. (Original) A system according to Claim 22 wherein the interference comprises an interfering signal including an interfering signal synchronization word, and wherein the joint demodulator locates the interfering signal synchronization word in the received signal, and determines power of the interfering signal relative to noise power from the located interfering signal synchronization word, to thereby determine the interference-to-noise ratio.

24. (Original) A system according to Claim 23 wherein the joint demodulator jointly demodulates the signal in response to the located interfering signal synchronization word.

25. (Original) A system for detecting a desired signal that includes a desired signal synchronization sequence, from a received signal that includes an interfering signal having an interfering signal synchronization sequence, the desired signal detecting system comprising:

a synchronizer that synchronizes the received signal;

a detector that is responsive to the synchronizer to generate a first desired signal, an estimate of an interference-to-noise ratio of the received signal and an identification of the interfering signal synchronization sequence, at least one of the synchronizer and the detector also generating an estimate of a carrier-to-interference-and-noise ratio of the received signal;

a joint demodulator that is responsive to the synchronizer and to the identification of the interfering signal synchronization sequence, to generate a second desired signal; and

a selector that selects one of the first desired signal and the second desired signal based upon the estimate of the carrier-to-interference-and-noise ratio of the received signal and the estimate of the interference-to-noise ratio of the received signal.

26. (Previously Presented) A system according to Claim 25:

wherein the joint demodulator is further responsive to the first desired signal to generate the second desired signal.

27. (Original) A system according to Claim 25 further comprising:

an interfering signal channel estimator that is responsive to the synchronized received signal and to the identification of the interfering signal synchronization sequence to generate a channel estimate for the interfering signal, wherein the joint demodulator also is responsive to the channel estimate for the interfering signal.

28. (Original) A system according to Claim 25 wherein the selector selects the second desired signal when the signal-to-noise-and-interference ratio is less than a first

threshold and when the interference-to-noise ratio is greater than a second threshold, and selects the first desired signal otherwise.

29-33. (Canceled).

34. (Currently Amended) ~~A system according to Claim 31:~~ A system for locating an interfering signal synchronization sequence in a received signal that includes a desired signal having a desired signal synchronization sequence and an interfering signal having the interfering signal synchronization sequence, the system comprising:

a demodulator that is responsive to the received signal to generate an estimate of the desired signal and an estimate of a residual signal;

a carrier-to-interference-and-noise ratio estimate generator; and

an interfering signal synchronization sequence finder that is responsive to one of the received signal and the estimate of the residual signal if an estimate of a carrier-to-interference-and-noise ratio of the received signal exceeds a first threshold,

~~wherein the threshold is a first threshold and~~ wherein the interfering signal synchronization sequence finder is responsive to the received signal if the estimate of the carrier-to-interference-and-noise ratio of the received signal is less than a second threshold, and is responsive to the estimate of the residual signal [[,]] if the estimate of the carrier-to-interference-and-noise ratio of the received signal is greater than the second threshold and less than the first threshold.

35. (Currently Amended) ~~A system according to Claim 32~~ A system for locating an interfering signal synchronization sequence in a received signal that includes a desired signal having a desired signal synchronization sequence and an interfering signal having the interfering signal synchronization sequence, the system comprising:

a demodulator that is responsive to the received signal to generate an estimate of the desired signal and an estimate of a residual signal;

a carrier-to-interference-and-noise ratio estimate generator; and

an interfering signal synchronization sequence finder that is responsive to one of the received signal and the estimate of the residual signal, based upon an estimate of a carrier-to-interference-and-noise ratio of the received signal,

wherein the demodulator demodulates the received signal to generate uncoded bits, decodes the demodulated signal, recodes the decoded signal to generate coded bits, combines the coded bits and the uncoded bits to generate a detected sequence, remodulates the detected sequence and applies the remodulated detected sequence with a desired signal channel estimate to generate the estimate of the desired signal, and wherein the demodulator subtracts the estimate of the desired signal from the received signal to generate the estimate of the residual signal.

36. (Currently Amended) ~~A system according to Claim 33~~ A system for locating an interfering signal synchronization sequence in a received signal that includes a desired signal having a desired signal synchronization sequence and an interfering signal having the interfering signal synchronization sequence, the system comprising:

a demodulator that is responsive to the received signal to generate an estimate of the desired signal and an estimate of a residual signal;

a carrier-to-interference-and-noise ratio estimate generator;

an interfering signal synchronization sequence finder that is responsive to one of the received signal and the estimate of the residual signal, based upon an estimate of a carrier-to-interference-and-noise ratio of the received signal; and

an interfering channel response estimator that is responsive to a found interfering signal synchronization sequence,

wherein the interfering channel response estimator comprises:

a medium response estimator that estimates a medium response for each of a plurality of delays, in response to the found interfering signal synchronization sequence;

a selector that selects a subset of the estimated medium responses to produce a plurality of medium response rays; and

wherein the interfering channel response estimator is responsive to the medium response rays to estimate [[the]] an interfering channel response.